

## 1 ABSTRACT

2 A multi-layer laterally-confined dispersion-engineered optical waveguide may include  
3 one multi-layer reflector stack for guiding an optical mode along a surface thereof, or may  
4 include two multi-layer reflector stacks with a core therebetween for guiding an optical mode  
5 along the core. Dispersive properties of such multi-layer waveguides enable modal-index-  
6 matching between low-index optical fibers and/or waveguides and high-index integrated optical  
7 components and efficient transfer of optical signal power therebetween. Integrated optical  
8 devices incorporating such multi-layer waveguides may therefore exhibit low ( $< 3$  dB) insertion  
9 losses. Incorporation of an active layer (electro-optic, electro-absorptive, non-linear-optical) into  
10 such waveguides enables active control of optical loss and/or modal index with relatively low-  
11 voltage/low-intensity control signals. Integrated optical devices incorporating such waveguides  
12 may therefore exhibit relatively low drive signal requirements.